Bayesian Econometrics Mit

Both state-space models and Markov switching models have been highly productive paths for empirical research in macroeconomics and finance. This book presents recent advances in econometric methods that make feasible the estimation of models that have both features. One approach, in the classical framework, approximates the likelihood function; the other, in the Bayesian framework, uses Gibbs-sampling to simulate posterior distributions from data.The authors present numerous applications of these approaches in detail: decomposition of time series into trend and cycle, a new index of coincident economic indicators, approaches to modeling monetary policy uncertainty, Friedman's "plucking" model of recessions, the detection of turning points in the business cycle and the question of whether booms and recessions are duration-dependent, state-space models with heteroskedastic disturbances, fads and crashes in financial markets, long-run real exchange rates, and mean reversion in asset returns.

Bayesian Statistics for Experimental ScientistsA General Introduction Using Distribution-Free MethodsMIT Press

Following theseminal Palgrave Handbook of Econometrics: Volume I , this second volume brings together the finestacademicsworking in econometrics today andexploresapplied econometrics, containing contributions onsubjects includinggrowth/development econometrics and applied econometrics and computing.

This two-volume set summarizes recent research on corporate decision-making. The first volume covers measurement and theoretical subjects as well as sources of capital, including banks, public offerings, and private investors. In the second volume, contributors focus on the ways corporations are structured and the practices through which they can be bought and sold. Thus, its major subjects include dividends, capital structure, financial distress, takeovers, restructurings, and managerial incentives. *Takes stock of the main empirical findings to date across an unprecedented spectrum of corporate finance issues *Discusses everything from econometric methodology, to raising capital and capital structure choice, and to managerial incentives and corporate investment behavior. *Contributors are leading empirical researchers that remain active in their respective areas of expertise *Writing style makes the chapters accessible to industry practitioners

A comprehensive introduction to machine learning that uses probabilistic models and inference as a unifying approach. Today's Web-enabled deluge of electronic data calls for automated methods of data analysis. Machine learning provides these, developing methods that can automatically detect patterns in data and then use the uncovered patterns to predict future data. This textbook offers a comprehensive and self-contained introduction to the field of machine learning, based on a unified, probabilistic approach. The coverage combines breadth and depth, offering necessary background material on such topics as probability, optimization, and linear algebra as well as discussion of recent developments in the field, including conditional random fields, L1 regularization, and deep learning. The book is written in an informal, accessible style, complete with pseudo-code for the most important algorithms. All topics are copiously illustrated with color images and worked examples drawn from such application domains as biology, text processing, computer vision, and robotics. Rather than providing a cookbook of different heuristic methods, the book stresses a principled model-based approach, often using the language of graphical models to specify models in a concise and intuitive way. Almost all the models described have been implemented in a MATLAB software package—PMTK (probabilistic modeling toolkit)—that is freely available online. The book is suitable for upper-level undergraduates with an introductory-level college math background and beginning graduate students.

The third volume of edited papers from the Tenth World Congress of the Econometric Society 2010.

Volume 40B of Advances in Econometrics examines innovations in stochastic frontier analysis, nonparametric and semiparametric modeling and estimation, A/B experiments, big-data analysis, and quantile regression.

A unified, comprehensive, and up-to-date introduction to the analytical and numerical tools for solving dynamic economic problems. This book offers a unified, comprehensive, and up-to-date treatment of analytical and numerical tools for solving dynamic economic problems. The focus is on introducing recursive methods—an important part of every economist's set of tools—and readers will learn to apply recursive methods to a variety of dynamic economic problems. The book is notable for its combination of theoretical foundations and numerical methods. Each topic is first described in theoretical terms, with explicit definitions and rigorous proofs; numerical methods and computer codes to implement these methods follow. Drawing on the latest research, the book covers such cutting-edge topics as asset price bubbles, recursive utility, robust control, policy analysis in dynamic New Keynesian models with the zero lower bound on interest rates, and Bayesian estimation of dynamic stochastic general equilibrium (DSGE) models. The book first introduces the theory of dynamical systems and numerical methods for solving dynamical systems, and then discusses the theory and applications of dynamic optimization. The book goes on to treat equilibrium analysis, covering a variety of core macroeconomic models, and such additional topics as recursive utility (increasingly used in finance and macroeconomics), dynamic games, and recursive contracts. The book introduces Dynare, a widely used software platform for handling a range of economic models; readers will learn to use Dynare for numerically solving DSGE models and performing Bayesian estimation of DSGE models. Mathematical appendixes present all the necessary mathematical concepts and results. Matlab codes used to solve examples are indexed and downloadable from the book's website. A solutions manual for students is available for sale from the MIT Press; a downloadable instructor's manual is available to qualified instructors.

Introduces the increasingly popular Bayesian approach to statistics to graduates and advanced undergraduates. In contrast to the long-standing frequentist approach to statistics,

the Bayesian approach makes explicit use of prior information and is based on the subjective view of probability. Bayesian econometrics takes probability theory as applying to all situations in which uncertainty exists, including uncertainty over the values of parameters. A distinguishing feature of this book is its emphasis on classical and Markov chain Monte Carlo (MCMC) methods of simulation. The book is concerned with applications of the theory to important models that are used in economics, political science, biostatistics, and other applied fields. These include the linear regression model and extensions to Tobit, probit, and logit models; time series models; and models involving endogenous variables.

The estimation of the effects of treatments endogenous variables representing everything from individual participation in a training program to national participation in a World Bank loan program has occupied much of the theoretical and applied econometric research literatures. This volume presents a collection of papers on this topic.

This book contains selected and refereed contributions to the "Inter national Symposium on Probability and Bayesian Statistics" which was orga nized to celebrate the 80th birthday of Professor Bruno de Finetti at his birthplace Innsbruck in Austria. Since Professor de Finetti died in 1985 the symposium was dedicated to the memory of Bruno de Finetti and took place at Igls near Innsbruck from 23 to 26 September 1986. Some of the pa pers are published especially by the relationship to Bruno de Finetti's scientific work. The evolution of stochastics shows growing importance of probability as coherent assessment of numerical values as degrees of believe in certain events. This is the basis for Bayesian inference in the sense of modern statistics. The contributions in this volume cover a broad spectrum ranging from foundations of probability across psychological aspects of formulating sub jective probability statements, abstract measure theoretical considerations, contributions to theoretical statistics and stochastic processes, to real applications in economics, reliability and hydrology. Also the question is raised if it is necessary to develop new techniques to model and analyze fuzzy observations in samples. The articles are arranged in alphabetical order according to the family name of the first author of each paper to avoid a hierarchical ordering of importance of the different topics. Readers interested in special topics can use the index at the end of the book as guide.

The purpose of this volume is to honour a pioneer in the field of econometrics, A. L. Nagar, on the occasion of his sixtieth birthday. Fourteen econometricians from six countries on four continents have contributed to this project. One of us was his teacher, some of us were his students, many of us were his colleagues, all of us are his friends. Our volume opens with a paper by L. R. Klein which discusses the meaning and role of exogenous variables in struc tural and vector-autoregressive econometric models. Several examples from recent macroeconomic history are presented and the notion of Granger-causality is discussed. This is followed by two papers dealing with an issue of considerable relevance to developing countries, such as India; the measurement of the inequality in the distribution of income. The paper by C. T. West and H. Theil deals with the problem of measuring inequality of all components of total income vvithin a region, rather than just labour income. It applies its results to the regions of the United States. The second paper in this group, by N. Kakwani, derives the large-sample distributions of several popular inequality measures, thus providing a method for drawing large-sample inferences about the differences in inequality between regions. The techniques are applied to the regions of Cote d'Ivoire. The next group of papers is devoted to econometric theory in the context of the dynamic, simultaneous, linear equations model. The first, by P. J.

By focusing on the human side as well as the intellectualdimensions of how economists work and think, this collection ofinterviews with top economists of the 20th century becomes astartling and lively introduction to the modern world ofmacroeconomics. A fun read! For more information, frequent updates, and to comment on theforthcoming book, visit William A. Barnett's weblog athttp://economistmind.blogspot.com/. Acclaim for Inside the Economist's Mind "In candid interviews, these great economists prove to befabulous story tellers of their lives and times. Unendinglygripping for insiders, this book should also help non-specialistsunderstand how economists think." Professor Julio Rotemberg, Harvard University Business School,and Editor, Review of Economics and Statistics. "Economics used to be called the 'dismal science'. It will beimpossible for anybody to hold that view anymore ... This isscience with flesh and blood, and a lot of fascinating stories thatyou will find nowhere else." Dr. Jean-Pascal Bénassy, Paris-Jourdan SciencesÉconomiques, Paris, France "This book provides a rare and intriguing view of the personaland professional lives of leading economists ... It is like ABeautiful Mind, scaled by a factor of 16 [the number ofinterviews in the book]." Professor Lee Ohanian, University of California at LosAngeles " ... if you want an insider view of how economics has beendeveloping in the last decades, this is the (only) book foryou." Professor Giancarlo Gandolfo, University of Rome ‘LaSapienza,’ Rome "Here we see the HUMAN side of path-breaking research, thepersonalities and pitfalls, the DRAMA behind the science." Professor Francis X. Diebold, University of Pennsylvania,Philadelphia

The text and accompanying CD-ROM develop step by step a modern approach to econometric problems. They are aimed at talented upper-level undergraduates, graduate students, and professionals wishing to acquaint themselves with the pinciples and procedures for information processing and recovery from samples of economic data. The text fully provides an operational understanding of a rich set of estimation and inference tools, including tradional likelihood based and non-traditional non-likelihood based procedures, that can be used in conjuction with the computer to address economic problems.

The award-winning The New Palgrave Dictionary of Economics, 2nd edition is now available as a dynamic online resource. Consisting of over 1,900 articles written by leading figures in the field including Nobel prize winners, this is the definitive scholarly reference work for a new generation of economists. Regularly updated! This product is a subscription based product.

Here at last is the fourth edition of the textbook that is required reading for economics students as well as those practising applied economics. Not only does it teach some of the

basic econometric methods and the underlying assumptions behind them, but it also includes a simple and concise treatment of more advanced topics from spatial correlation to time series analysis. This book’s strength lies in its ability to present complex material in a simple, yet rigorous manner. This superb fourth edition updates identification and estimation methods in the simultaneous equation model. It also reviews the problem of weak instrumental variables as well as updating panel data methods.

This volume honors George Judge and his many, varied and outstanding contributions to econometrics, statistics, mathematical programming and spatial equilibrium modeling. The papers are grouped into four parts, each part representing an area in which Professor Judge has made a significant contribution. The authors have all benefited in some way, directly or indirectly, through an association with George Judge and his work. The three papers in Part I are concerned with various aspects of pre-test and Stein-rule estimation. Part II contains applications of Bayesian methodology, new developments in Bayesian methodology, and an overview of Bayesian econometrics. The papers in Part III comprise new developments in time-series analysis, improved estimation and Markov chain analysis. The final part on spatial equilibrium modeling contains papers that had their origins from Professor Judge's pioneering work in the 60's.

This volume of Advances in Econometrics 34 focusses on Bayesian model comparison. It reflects the recent progress in model building and evaluation that has been achieved in the Bayesian paradigm and provides new state-of-the-art techniques, methodology, and findings that should stimulate future research.

The Encyclopedia of Health Economics offers students, researchers and policymakers objective and detailed empirical analysis and clear reviews of current theories and polices. It helps practitioners such as health care managers and planners by providing accessible overviews into the broad field of health economics, including the economics of designing health service finance and delivery and the economics of public and population health. This encyclopedia provides an organized overview of this diverse field, providing one trusted source for up-to-date research and analysis of this highly charged and fast-moving subject area. Features research-driven articles that are objective, better-crafted, and more detailed than is currently available in journals and handbooks Combines insights and scholarship across the breadth of health economics, where theory and empirical work increasingly come from non-economists Provides overviews of key policies, theories and programs in easy-to-understand language

Illustrates the scope and diversity of modern applications, reviews advances, and highlights many desirable aspects of inference and computations. This work presents an historical overview that describes key contributions to development and makes predictions for future directions.

The standard introductory texts to mathematical statistics leave the Bayesian approach to be taught later in advanced topics courses—giving students the impression that Bayesian statistics provide but a few techniques appropriate in only special circumstances. Nothing could be further from the truth, argues Dale Poirier, who has developed a course for teaching comparatively both the classical and the Bayesian approaches to econometrics. Poirier's text provides a thoroughly modern, self-contained, comprehensive, and accessible treatment of the probability and statistical foundations of econometrics with special emphasis on the linear regression model. Written primarily for advanced undergraduate and graduate students who are pursuing research careers in economics, Intermediate Statistics and Econometrics offers a broad perspective, bringing together a great deal of diverse material. Its comparative approach, emphasis on regression and prediction, and numerous exercises and references provide a solid foundation for subsequent courses in econometrics and will prove a valuable resource to many nonspecialists who want to update their quantitative skills. The introduction closes with an example of a real-world data set—the Challenger space shuttle disaster—that motivates much of the text's theoretical discussion. The ten chapters that follow cover basic concepts, special distributions, distributions of functions of random variables, sampling theory, estimation, hypothesis testing, prediction, and the linear regression model. Appendixes contain a review of matrix algebra, computation, and statistical tables.

This highly acclaimed text, now available in paperback, provides a thorough account of key concepts and theoretical results, with particular emphasis on viewing statistical inference as a special case of decision theory. Information-theoretic concepts play a central role in the development of the theory, which provides, in particular, a detailed discussion of the problem of specification of so-called prior ignorance . The work is written from the authors s committed Bayesian perspective, but an overview of non-Bayesian theories is also provided, and each chapter contains a wide-ranging critical re-examination of controversial issues. The level of mathematics used is such that most material is accessible to readers with knowledge of advanced calculus. In particular, no knowledge of abstract measure theory is assumed, and the emphasis throughout is on statistical concepts rather than rigorous mathematics. The book will be an ideal source for all students and researchers in statistics, mathematics, decision analysis, economic and business studies, and all branches of science and engineering, who wish to further their understanding of Bayesian statistics

This introduction to the MDL Principle provides a reference accessible to graduate students and researchers in statistics, pattern classification, machine learning, and data mining, to philosophers interested in the foundations of statistics, and to researchers in other applied sciences that involve model selection.

Bayesian Econometric Methods examines principles of Bayesian inference by posing a series of theoretical and applied questions and providing detailed solutions to those questions. This second edition adds extensive coverage of models popular in finance and macroeconomics, including state space and unobserved components models, stochastic volatility models, ARCH, GARCH, and vector autoregressive models. The authors have also added many new exercises related to Gibbs sampling and Markov Chain Monte Carlo (MCMC) methods. The text includes regression-based and hierarchical specifications, models based upon latent variable representations, and mixture and time series specifications. MCMC methods are discussed and illustrated in detail - from introductory applications to those at the current research frontier - and MATLAB® computer

programs are provided on the website accompanying the text. Suitable for graduate study in economics, the text should also be of interest to students studying statistics, finance, marketing, and agricultural economics.

Master Bayesian Inference through Practical Examples and Computation–Without Advanced Mathematical Analysis Bayesian methods of inference are deeply natural and extremely powerful. However, most discussions of Bayesian inference rely on intensely complex mathematical analyses and artificial examples, making it inaccessible to anyone without a strong mathematical background. Now, though, Cameron Davidson-Pilon introduces Bayesian inference from a computational perspective, bridging theory to practice–freeing you to get results using computing power. Bayesian Methods for Hackers illuminates Bayesian inference through probabilistic programming with the powerful PyMC language and the closely related Python tools NumPy, SciPy, and Matplotlib. Using this approach, you can reach effective solutions in small increments, without extensive mathematical intervention. Davidson-Pilon begins by introducing the concepts underlying Bayesian inference, comparing it with other techniques and guiding you through building and training your first Bayesian model. Next, he introduces PyMC through a series of detailed examples and intuitive explanations that have been refined after extensive user feedback. You'll learn how to use the Markov Chain Monte Carlo algorithm, choose appropriate sample sizes and priors, work with loss functions, and apply Bayesian inference in domains ranging from finance to marketing. Once you've mastered these techniques, you'll constantly turn to this guide for the working PyMC code you need to jumpstart future projects. Coverage includes • Learning the Bayesian "state of mind" and its practical implications • Understanding how computers perform Bayesian inference • Using the PyMC Python library to program Bayesian analyses • Building and debugging models with PyMC • Testing your model's "goodness of fit" • Opening the "black box" of the Markov Chain Monte Carlo algorithm to see how and why it works • Leveraging the power of the "Law of Large Numbers" • Mastering key concepts, such as clustering, convergence, autocorrelation, and thinning • Using loss functions to measure an estimate's weaknesses based on your goals and desired outcomes • Selecting appropriate priors and understanding how their influence changes with dataset size • Overcoming the "exploration versus exploitation" dilemma: deciding when "pretty good" is good enough • Using Bayesian inference to improve A/B testing • Solving data science problems when only small amounts of data are available Cameron Davidson-Pilon has worked in many areas of applied mathematics, from the evolutionary dynamics of genes and diseases to stochastic modeling of financial prices. His contributions to the open source community include lifelines, an implementation of survival analysis in Python. Educated at the University of Waterloo and at the Independent University of Moscow, he currently works with the online commerce leader Shopify.

This is the perfect (and essential) supplement for all econometrics classes--from a rigorous first undergraduate course, to a first master's, to a PhD course. Explains what is going on in textbooks full of proofs and formulas Offers intuition, skepticism, insights, humor, and practical advice (dos and don'ts) Contains new chapters that cover instrumental variables and computational considerations Includes additional information on GMM, nonparametrics, and an introduction to wavelets

A comprehensive introduction to optimization with a focus on practical algorithms for the design of engineering systems. This book offers a comprehensive introduction to optimization with a focus on practical algorithms. The book approaches optimization from an engineering perspective, where the objective is to design a system that optimizes a set of metrics subject to constraints. Readers will learn about computational approaches for a range of challenges, including searching high-dimensional spaces, handling problems where there are multiple competing objectives, and accommodating uncertainty in the metrics. Figures, examples, and exercises convey the intuition behind the mathematical approaches. The text provides concrete implementations in the Julia programming language. Topics covered include derivatives and their generalization to multiple dimensions; local descent and first- and second-order methods that inform local descent; stochastic methods, which introduce randomness into the optimization process; linear constrained optimization, when both the objective function and the constraints are linear; surrogate models, probabilistic surrogate models, and using probabilistic surrogate models to guide optimization; optimization under uncertainty; uncertainty propagation; expression optimization; and multidisciplinary design optimization. Appendixes offer an introduction to the Julia language, test functions for evaluating algorithm performance, and mathematical concepts used in the derivation and analysis of the optimization methods discussed in the text. The book can be used by advanced undergraduates and graduate students in mathematics, statistics, computer science, any engineering field, (including electrical engineering and aerospace engineering), and operations research, and as a reference for professionals.

Tools to improve decision making in an imperfect world This publication provides readers with a thorough understanding ofBayesian analysis that is grounded in the theory of inference andoptimal decision making. Contemporary Bayesian Econometrics andStatistics provides readers with state-of-the-art simulationmethods and models that are used to solve complex real-worldproblems. Armed with a strong foundation in both theory andpractical problem-solving tools, readers discover how to optimizedecision making when faced with problems that involve limited orimperfect data. The book begins by examining the theoretical and mathematicalfoundations of Bayesian statistics to help readers understand howand why it is used in problem solving. The author then describeshow modern simulation methods make Bayesian approaches practicalusing widely available mathematical applications software. Inaddition, the author details how models can be applied to specificproblems, including: * Linear models and policy choices * Modeling with latent variables and missing data * Time series models and prediction * Comparison and evaluation of models The publication has been developed and fine- tuned through a decadeof classroom experience, and readers will find the author'sapproach very engaging and accessible. There are nearly 200examples and exercises to help readers see how effective use ofBayesian statistics enables them to make optimal decisions. MATLAB?and R computer programs are integrated throughout the book. Anaccompanying Web site provides readers with computer code for manyexamples and datasets. This publication is tailored for research professionals who useeconometrics and similar statistical methods in their work. Withits emphasis on practical problem solving and extensive use ofexamples and exercises, this is also an excellent textbook forgraduate-level students in a broad range of fields, includingeconomics, statistics, the social sciences, business, and publicpolicy.

Covers the key issues required for students wishing to understand and analyse the core empirical issues in economics. It focuses on descriptive statistics, probability concepts and basic econometric techniques and has an accompanying website that contains all the data used in the examples and provides exercises for undertaking original research.

A coherent introductory text from a groundbreaking researcher, focusing on clarity and motivation to build intuition and understanding.

The Handbook is a definitive reference source and teaching aid for econometricians. It examines models, estimation theory, data analysis and field applications in econometrics. Comprehensive surveys, written by experts, discuss recent developments at a level suitable for professional use by economists, econometricians, statisticians, and in advanced graduate econometrics courses. For more information on the Handbooks in Economics series, please see our home page on http://www.elsevier.nl/locate/hes

The revised edition of the essential resource on macroeconometrics Structural Macroeconometrics provides a thorough overview and in-depth exploration of methodologies, models, and techniques used to analyze forces shaping national economies. In this thoroughly revised second edition, David DeJong and Chetan Dave emphasize time series econometrics and unite theoretical and empirical research, while taking into account important new advances in the field. The authors detail strategies for solving dynamic structural models and present the full range of methods for characterizing and evaluating empirical implications, including calibration exercises, method-of-moment procedures, and likelihood-based procedures, both classical and Bayesian. The authors look at recent strides that have been made to enhance

numerical efficiency, consider the expanded applicability of dynamic factor models, and examine the use of alternative assumptions involving learning and rational inattention on the part of decision makers. The treatment of methodologies for obtaining nonlinear model representations has been expanded, and linear and nonlinear model representations are integrated throughout the text. The book offers a rich array of implementation algorithms, sample empirical applications, and supporting computer code. Structural Macroeconometrics is the ideal textbook for graduate students seeking an introduction to macroeconomics and econometrics, and for advanced students pursuing applied research in macroeconomics. The book's historical perspective, along with its broad presentation of alternative methodologies, makes it an indispensable resource for academics and professionals.

As well as specification testing, Gauss-Newton regressions and regression diagnostics. In addition, the book features a set of empirical illustrations that demonstrate some of the basic results. The empirical exercises are solved using several econometric software packages.

An introduction to the Bayesian approach to statistical inference that demonstrates its superiority to orthodox frequentist statistical analysis. This book offers an introduction to the Bayesian approach to statistical inference, with a focus on nonparametric and distribution-free methods. It covers not only well-developed methods for doing Bayesian statistics but also novel tools that enable Bayesian statistical analyses for cases that previously did not have a full Bayesian solution. The book's premise is that there are fundamental problems with orthodox frequentist statistical analyses that distort the scientific process. Side-by-side comparisons of Bayesian and frequentist methods illustrate the mismatch between the needs of experimental scientists in making inferences from data and the properties of the standard tools of classical statistics. The book first covers elementary probability theory, the binomial model, the multinomial model, and methods for comparing different experimental conditions or groups. It then turns its focus to distribution-free statistics that are based on having ranked data, examining data from experimental studies and rank-based correlative methods. Each chapter includes exercises that help readers achieve a more complete understanding of the material. The book devotes considerable attention not only to the linkage of statistics to practices in experimental science but also to the theoretical foundations of statistics. Frequentist statistical practices often violate their own theoretical premises. The beauty of Bayesian statistics, readers will learn, is that it is an internally coherent system of scientific inference that can be proved from probability theory.

Econometric models are widely used in the creation and evaluation of economic policy in the public and private sectors. But these models are useful only if they adequately account for the phenomena in question, and they can be quite misleading if they do not. In response, econometricians have developed tests and other checks for model adequacy. All of these methods, however, take as given the specification of the model to be tested. In this book, John Geweke addresses the critical earlier stage of model development, the point at which potential models are inherently incomplete. Summarizing and extending recent advances in Bayesian econometrics, Geweke shows how simple modern simulation methods can complement the creative process of model formulation. These methods, which are accessible to economics PhD students as well as to practicing applied econometricians, streamline the processes of model development and specification checking. Complete with illustrations from a wide variety of applications, this is an important contribution to econometrics that will interest economists and PhD students alike.

A broad coverage of the application of Bayesian econometrics in the major fields of economics and related disciplines, including macroeconomics, microeconomics, finance, and marketing.

Emphasizing the impact of computer software and computational technology on econometric theory and development, this text presents recent advances in the application of computerized tools to econometric techniques and practices—focusing on current innovations in Monte Carlo simulation, computer-aided testing, model selection, and Bayesian methodology for improved econometric analyses.

Panel Data Econometrics: Empirical Applications introduces econometric modelling. Written by experts from diverse disciplines, the volume uses longitudinal datasets to illuminate applications for a variety of fields, such as banking, financial markets, tourism and transportation, auctions, and experimental economics. Contributors emphasize techniques and applications, and they accompany their explanations with case studies, empirical exercises and supplementary code in R. They also address panel data analysis in the context of productivity and efficiency analysis, where some of the most interesting applications and advancements have recently been made. Provides a vast array of empirical applications useful to practitioners from different application environments Accompanied by extensive case studies and empirical exercises Includes empirical chapters accompanied by supplementary code in R, helping researchers replicate findings Represents an accessible resource for diverse industries, including health, transportation, tourism, economic growth, and banking, where researchers are not always econometrics experts

Judging by the sheer number of papers reviewed in this Handbook, the empirical analysis of firms' financing and investment decisions—empirical corporate finance—has become a dominant field in financial economics. The growing interest in everything "corporate is fueled by a healthy combination of fundamental theoretical developments and recent widespread access to large transactional data bases. A less scientific—but nevertheless important—source of inspiration is a growing awareness of the important social implications of corporate behavior and governance. This Handbook takes stock of the main empirical findings to date across an unprecedented spectrum of corporate finance issues, ranging from econometric methodology, to raising capital and capital structure choice, and to managerial incentives and corporate investment behavior. The surveys are written by leading empirical researchers that remain active in their respective areas of interest. With few exceptions, the writing style makes the chapters accessible to industry practitioners. For doctoral students and seasoned academics, the surveys offer dense roadmaps into the empirical research landscape and provide suggestions for future work. *The Handbooks in Finance series offers a broad group of outstanding volumes in various areas of finance *Each individual volume in the series should present an accurate self-contained survey of a sub-field of finance *The series is international in scope with contributions from field leaders the world over

This comprehensive Handbook presents the current state of art in the theory and methodology of macroeconomic data analysis. It is intended as a reference for graduate students and researchers interested in exploring new methodologies, but can also be employed as a graduate text. The Handbook concentrates on the most important issues, models and techniques for research in macroeconomics, and highlights the core methodologies and their empirical application in an accessible manner. Each chapter is largely self-contained, whilst the comprehensive introduction provides an overview of the key statistical concepts and methods. All of the chapters include the essential references for each topic and provide a sound guide for further reading. Topics covered include unit roots, non-linearities and structural breaks, time aggregation, forecasting, the Kalman filter, generalised method of moments, maximum likelihood and Bayesian estimation, vector autoregressive, dynamic stochastic general equilibrium and dynamic panel models. Presenting the most important models and techniques for empirical research, this Handbook will appeal to students, researchers and academics working in empirical macro and econometrics.